



**General  
Services  
Administration  
Caribbean Property  
Management Center**

**Parking Garage  
PR0024ZZ**

**150 Chardon Ave., Hato Rey, Puerto Rico**

**Post-Earthquake Assessment**

**January 28, 2020**

**General Services Administration**  
Caribbean Property Management Center  
150 Carlos Chardon Street, Room 359  
Hato Rey, PR 00918

Attention: Eng. Karin Reed, Project Manager  
Ms. Olga Rodriguez, Contracting Officer

**Submitted By:**



**RMA ARCHITECTS, P.S.C.**  
P.O. BOX 10992 CAPARRA HEIGHTS STATION  
SAN JUAN, PUERTO RICO 00922-0992  
T. 787-749-1960, T. 787-749-1965

# Post-Earthquake Facility Assessment for GSA Facilities in Puerto Rico

Project Name: **Puerto Rico Post-Earthquake Federal Facility Assessment**

Project Number: TBD

Region: Northeast and Caribbean (02) - Design & Construction Division

Building Name: Multiple Buildings

Building Addresses: 300 Recinto Sur Street, San Juan;  
150 Chardon Ave., Hato Rey; 651 Federal Drive,  
Guaynabo

Building Numbers: PR0003ZZ, PR0017ZZ, PR0023ZZ, PR0024ZZ and PR00521FP

Name	Year Built	Stories	GSF	Construction
Toledo	1914 & 1940	4+ Basement 7+ Basement	128,715	(b)(5)
Degetau	1974	7+ Basement	441,750	
Ruiz Nazario	1974	2		
Child Care	2000 & 2004	1	±19,180 (footprint)	
Parking Garage	2009 *	4	170,532	
GSA Center	1941	1	85,639	

Following the seismic events of January 7, 2020, the U.S. General Services Agency (GSA) requested Architectural and Engineering (A/E) services to provide Post Earthquake Assessment of GSA Federal Buildings in Puerto Rico. Multiple teams of qualified structural engineers were organized to expedite the work during January 13 through January 15, 2020. GSA- SME Subject Matter Expert, Eng. William Earl accompanied the teams in the performance of the series of assessments. Available documents were provided by GSA prior to the visit for review and are detailed in the report.

The AE is to provide qualified inspection teams to perform the Detailed Evaluation Method for the multiple buildings listed herein in accordance with the current edition of Applied Technology Council ATC-20: "Procedures for Post-earthquake Safety Evaluation of Buildings".

Deliverable 1 shall consist of:

1. Completed standardized forms included in ATC-20 for each building;
2. An executive summary of the observations and safety assessment for each building.

Deliverable 2 shall consist of a letter report of the observations and safety assessment for each building including descriptions and photographs of any observed safety conditions and key plans indicating locations.

Multiple teams of qualified structural engineers were organized to expedite the work during January 13 through January 15, 2020. Teams are detailed and date of site visits listed in the Schedule of work in the table below.

[illegible]

## **GSA Documents**

GSA provided available documentation of each building and all known conditions of the facilities. Building Managers provided the support to the team in providing logistics of access to the team additional printed drawings and their knowledge of the building conditions. Information received is as follows:

### **2013 Record Documents Structural Drawings S-1 to S-7**

By Gruzen Samton Architects, LLC/ Weidlinger Associates structural engineers

## **Building Background Information**

This building was built in the year 2009 and is a four story 170,532 square foot (b)(5) open-air garage with PV panel arrays at the top level

## **Findings**

The seismic evaluation performed has been of an ocular nature with the sole purpose of detecting visible damages with the structure experienced as a result of the earthquake of January 7, 2020 and the corresponding aftershocks to the date inspected. It does not address compliance with the current building codes in effect for Puerto Rico (IBC 2018) nor damages caused by other lateral loads causing events, soil conditions or any other events.

No structural damage related to recent seismic events were found at the subject facility. For additional observations, see the attached documentation.



# ATC-20 Detailed Evaluation Safety Assessment Form

## Inspection

Inspector ID: LUIS G. DAZA (b) (6)

Affiliation: PMA ARCHITECTS PSC

Inspection date and time: January 13-2020 ☐ AM ☒ PM

## Final Posting from page 2

- ☒ Inspected  
☐ Restricted Use  
☐ Unsafe

## Building Description

Building name: PARKING GARAGE (PROOZAZZ)

Address: 150 CHARDON AVENUE, HATO REY  
PR 00918 - USA

Building contact/phone: (b) (6)

Number of stories above ground: 4 below ground: 0

Approx. "Footprint area" (square feet): 51,088 ft<sup>2</sup>  
(GROSS: 170,532 ft<sup>2</sup>)

Number of residential units: n/a

Number of residential units not habitable: n/a

## Type of Construction

(b) (5)

## Primary Occupancy

- ☐ Dwelling ☐ Commercial ☒ Government  
☐ Other residential ☐ Offices ☐ Historic  
☐ Public assembly ☐ Industrial ☐ School  
☐ Emergency services ☐ Other: PARKING LOT

## Evaluation

Investigate the building for the conditions below and check the appropriate column. There is room on the second page for a sketch.

	Minor/None	Moderate	Severe	Comments
<b>Overall hazards:</b>				
Collapse or partial collapse	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Building or story leaning	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Structural hazards:</b>				
Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Base plates of some steel columns require corrosion repairs.
Roofs, floors (vertical loads)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Some fine cracks present in some walls but they are associated with previous use. There are concrete cores samples on these cracks. (Someone was investigating cracking pattern)
Columns, pilasters, corbels	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Diaphragms, horizontal bracing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Walls, vertical bracing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Precast connections	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Nonstructural hazards:</b>				
Parapets, ornamentation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Exterior edge of R/C wall at elevator near to axis requires repair (PATCHING). This damage was observed by employees a long time ago.
Cladding, glazing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ceilings, light fixtures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Interior walls, partitions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Elevators	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Stairs, exits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Electric, gas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Geotechnical hazards:</b>				
Slope failure, debris	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ground movement, fissures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

General Comments: Observed cracks in some structural walls are present before the recent seismic activity. Previous patching and repairs of surfaces were found.

Continue on page 2

# ATC-20 Detailed Evaluation Safety Assessment Form

Page 2

Building name: PARKING GARAGE (PROOZAZZ)

Inspector ID: ING. LUIS G. DAZA

(b) (6)

## Sketch (optional)

Provide a sketch of the building or damaged portions. Indicate damage points.

## Estimated Building Damage

If requested by the jurisdiction, estimate building damage (repair cost ÷ replacement cost, excluding contents).

- ☐ None
- ☐ 0-1%
- ☐ 1-10%
- ☐ 10-30%
- ☐ 30-60%
- ☐ 60-100%
- ☐ 100%

## Posting

N/A

If there is an existing posting from a previous evaluation, check the appropriate box.

Previous posting: ☐ INSPECTED ☐ RESTRICTED USE ☐ UNSAFE Inspector ID: \_\_\_\_\_ Date: \_\_\_\_\_

If necessary, revise the posting based on the new evaluation and team judgment. *Severe* conditions endangering the overall building are grounds for an Unsafe posting. Local *Severe* and overall *Moderate* conditions may allow a Restricted Use posting. Indicate the current posting below and at the top of page one.

☐ INSPECTED (Green placard) ☐ RESTRICTED USE (Yellow placard) ☐ UNSAFE (Red placard)

Record any use and entry restrictions exactly as written on placard: \_\_\_\_\_

## Further Actions

Check the boxes below only if further actions are needed. N/A

☐ Barricades needed in the following areas: N/A

- ☐ Engineering Evaluation recommended: ☐ Structural ☐ Geotechnical ☐ Other: \_\_\_\_\_
- ☐ Other recommendations: consider maintenance program to clean steel plates at base of columns. Protect them with non-shrink & non-metallic grout. One edge or R/C wall requires patching repair

Comments: This building does not have signs of distress or damages associated with recent seismic activity.

PR0024ZZ Parking Garage

Descr pt on	PR Post-Earthquake Structural Inspection
Address :	150 Chardon Avenue Hato Rey 00918 PR
Generated on	- 1/17/20
Stages	- Structural Inspection
Building trades	(b) [REDACTED]
Stakeholders	
Drawings	- GARAGE 1ST (GROUND) FL PLAN (Structural Inspection) - GARAGE 2ND FL PLAN (Structural Inspection) - GARAGE 3RD FL PLAN (Structural Inspection) - GARAGE 4TH FL PLAN (Structural Inspection)

**STRUCTURAL REPORT**  
**VISUAL INSPECTION OF THE**  
**PARKING GARAGE (PR0024ZZ)**

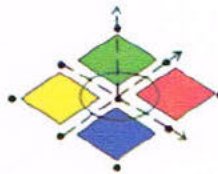
**150 CHARDON AVENUE, HATO REY, PR 00918**

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**By:**

**Luis G. Daza Duarte, Ph.D, MECE, PE**

(b) (6)



**January 13 of 2020**



## 1. INTRODUCTION

In view of recent events of a seismic nature since 28 December 2019, which have generated strong movements such as those recorded on the 7<sup>th</sup> and 11<sup>th</sup> of January 2020, with magnitudes of 6.4 and 5.9 on the Richter scale, respectively; it is necessary that the Federal Building structures be assessed after such kind of events.

This technical letter summarizes the structural inspection performed, following the ATC-20 (Applied Technology Council, Detailed Evaluation Safety Assessment form).

## 2. DESCRIPTION & FIELD DATA

(b) (6) On January 13, 2020, a field visit was made in the company of Arch. Myrene Giuliani from RMA Architects PSC and Federal Personnel in charge of building maintenance operations and Eng. Francisco Martínez GSA Building Manager.

Before to start the site visit, the structural drawings of the building were studied in order to detect the structural system and components of the building, age of construction, building code and mechanical properties of the construction materials.

The next step was the site visit, inspecting the exterior of the building and then the interior of the structure. Graphic evidence was taken with pictures with comments, creating a document that was already sent to the client.

In general terms the Parking Garage is a 4-story

(b)(5)

(b)(5)

this building has

170,532 square feet of construction area. The structure was designed and constructed in 2009.

### 3. FINDINGS

During the exterior and interior site visit, no structural damage associated with recent seismic activity in PR was detected.

The observed distress or cracking are pre-existing conditions such as some exterior cracking and spalling that was observed at ends of the main stair and elevator. The occurrence of these cracks, several years or months ago was confirmed by maintenance personnel.

A fine cracking pattern was observed at some structural shear walls, but they are also pre-existing because they have old marks and numbers and some concrete core samples were taken. We assume that during construction any investigation was made to evaluate these cracks. It is our opinion that the size and length of these cracks are not growing.

The observations made on ATC-20 form are related with old maintenance problems, such as water infiltration at lower roof areas, plaster cracking, poor drainage of rainwater near to exterior walls.

In terms of non-structural components, several observations were made. All of them are similar and can be summarized as follows:

- a) Base plates of steel columns used to support exterior façade are suffering a corrosion process. They need attention to remove corrosion and apply a permanent repair and protection. This observation is applicable to some beams and connections in the upper floor that are exposed to direct action of rain, air and sun.

b) A tank and a communications cabinet in the first floor at mechanical room shall have better attachment to R/C wall. The Communication cabinet was opened, and the electronic board was exposed.

#### 4. CONCLUSIONS AND RECOMMENDATIONS

Based on the visual inspections observed and following the ATC-20 form, this building is considered in serviceable condition and no damage is observed related with recent seismic activity until the date of our site visit.

Attention shall be given to fix corrosion problems in steel components. Pre-existing cracks and spalling would be fixed using special cementitious materials.

Cordially,

(b) (6)

Luis G. Daza Duarte Ph.D., MECE, PE

DAZA Structural Engineering Services PSC





(b)(5)

(b)(5)

GROUND FLOOR PLAN  
NOT TO SCALE



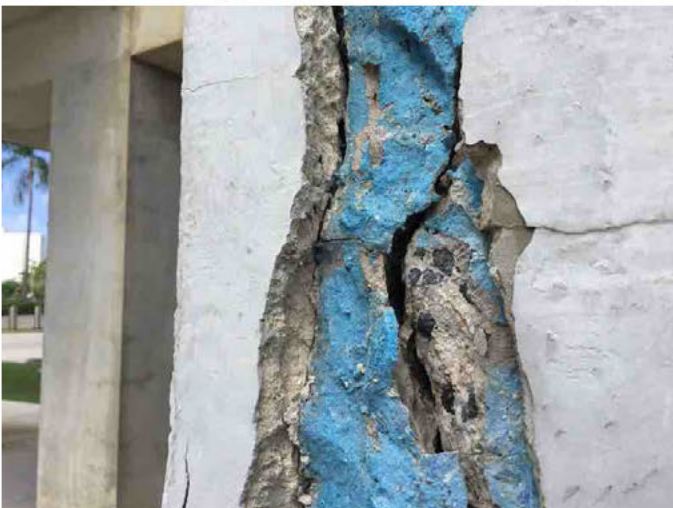
Shell

1 + 1/13/20



2 + 1/13/20

(b)(5)



3 1/13/20

(b)(5)



4 1/13/20

(b)(5)



5 1/13/20

(b)(5)



6 1/13/20

dition

(b)(5)

A large black rectangular redaction box covering the majority of the page content below item 6.

7 1/13/20

Water tank is not properly attached to CMU walls. This item requires attention.

(b)(5)

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8 1/13/20

Electronic circuits not properly installed into cab net. This item requires attention.

(b)(5)

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9 1/13/20

Mechanical and electrical cabinets in good condition.

(b)(5)

A large black rectangular redaction box covering the entire image content for item 9.

10 1/13/20

Pre-existing condition on beam finish possibly caused during steel installation. Cosmetic defect.

(b)(5)

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11 1/13/20





12 1/13/20

(b)(5)



1/13/20

(b)(5)



14 1/13/20

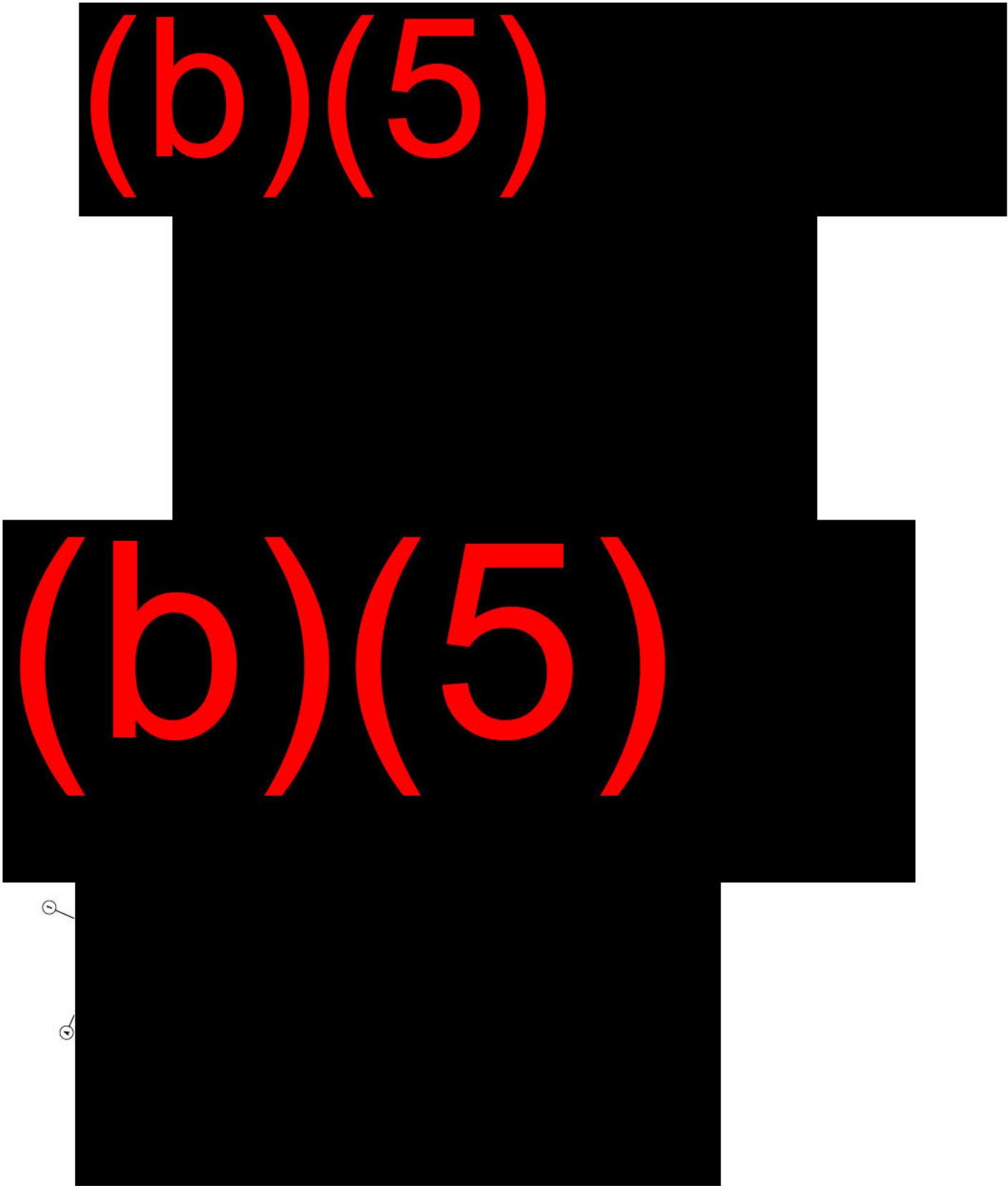
(b)(5)



15 1/13/20

Star #2.





SECOND FLOOR PLAN  
NOT TO SCALE

Shell

16 + 1/13/20

Corros on process at some connect ons of the guardra s. Typ ca at var ous ocat ons.



17 + 1/13/20

Crack ng of 2nd floor slab. Defect may be re ated w th m nor sett ements.



(b)(5)



18 1/13/20

Presence of efflorescence at shrinkage strip at lower surface (b)(5)



19 1/13/20

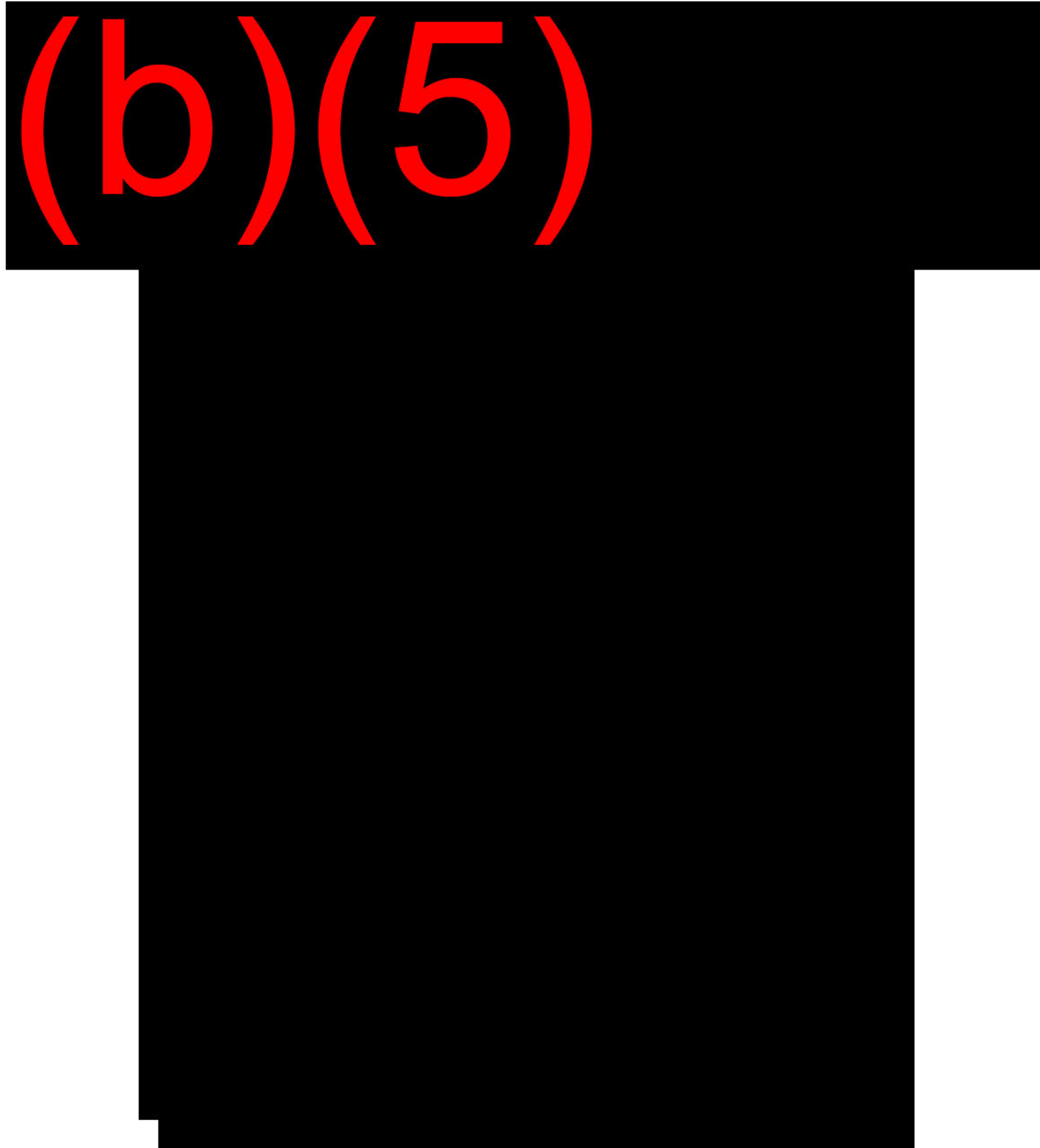
(b)(5)



20 1/13/20

(b)(5)





THIRD FLOOR PLAN  
NOT TO SCALE

Shell

21 1/13/20

(b)(5)



22 1/13/20

(b)(5)





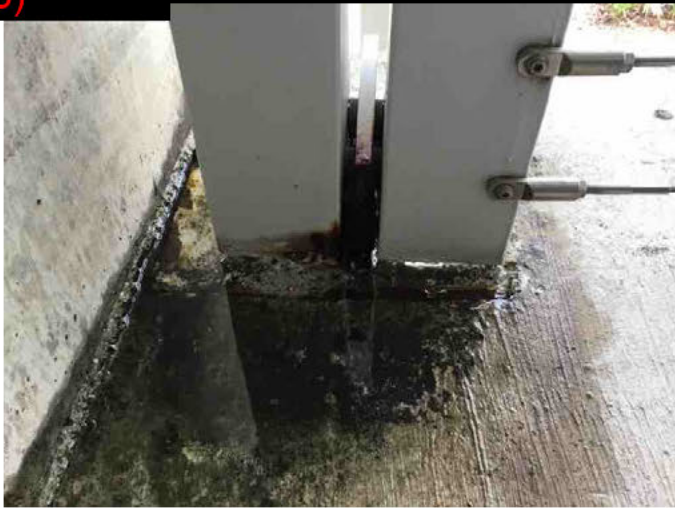
23 1/13/20

(b)(5)



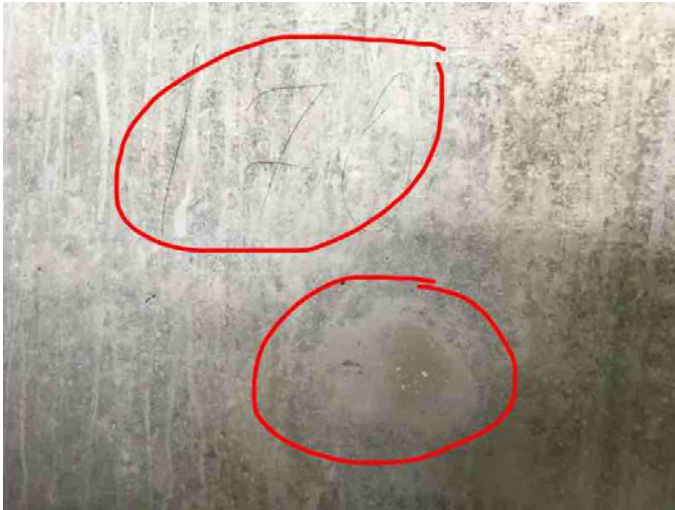
24 1/13/20

(b)(5)



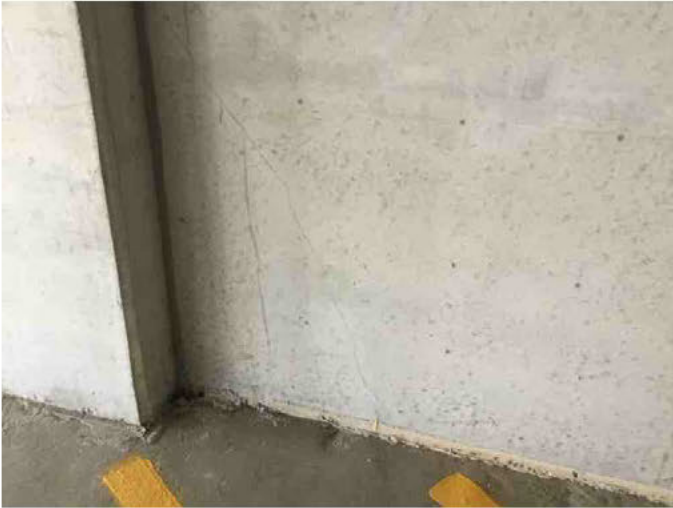
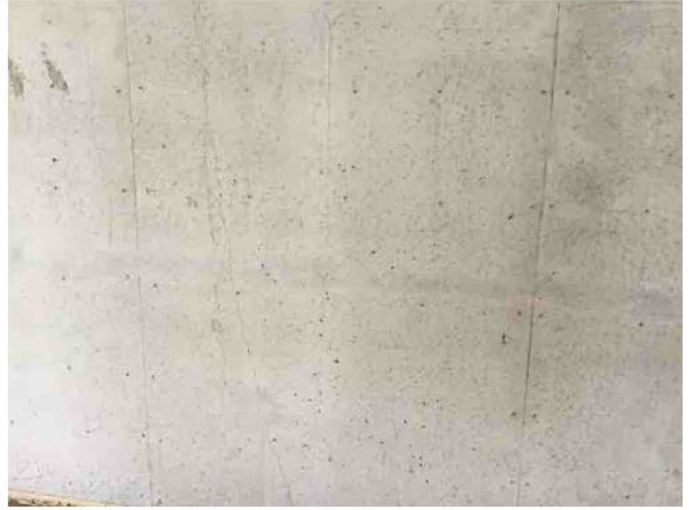
25 + 1/13/20

(b)(5)



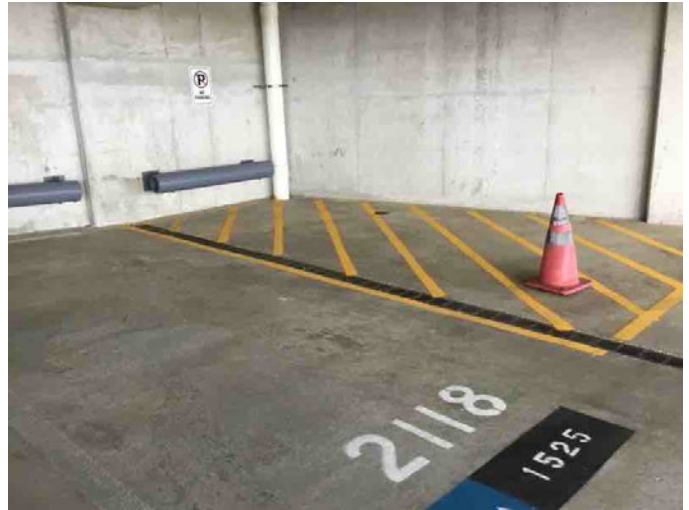
26 1/13/20

(b)(5)





(b)(5)



28 + 1/13/20

Dagona har ne cracks on structura wa . Previous defect. (Some cracks appear to be nvest gated due to presence of concrete cores. Od marks on some of them for dent ficat on). Not related w th recent se sm c act v ty.





29 1/13/20

(b)(5)



30 1/13/20

(b)(5)



31 + 1/13/20

Corros on of steel plates. Maintenance required. Typ ca at various ocations.



32 + 1/13/20

(b)(5)



33 1/13/20

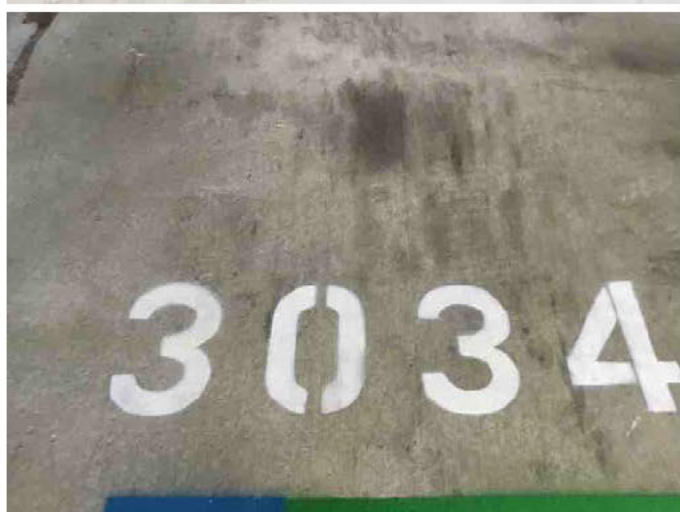
(b)(5)

(b)(5)



34 1/13/20

(b)(5)





35 + 1/13/20

(b)(5)



36 + 1/13/20

Dagona har ne cracks on structura wa . Prev ous defect. (Some cracks appear to be nvest gated due to presence of concrete cores. O d marks on some of them for dent ficat on). Not re ated w th recent se sm c act v ty.





37 + 1/13/20

(b)(5)



38 + 1/13/20

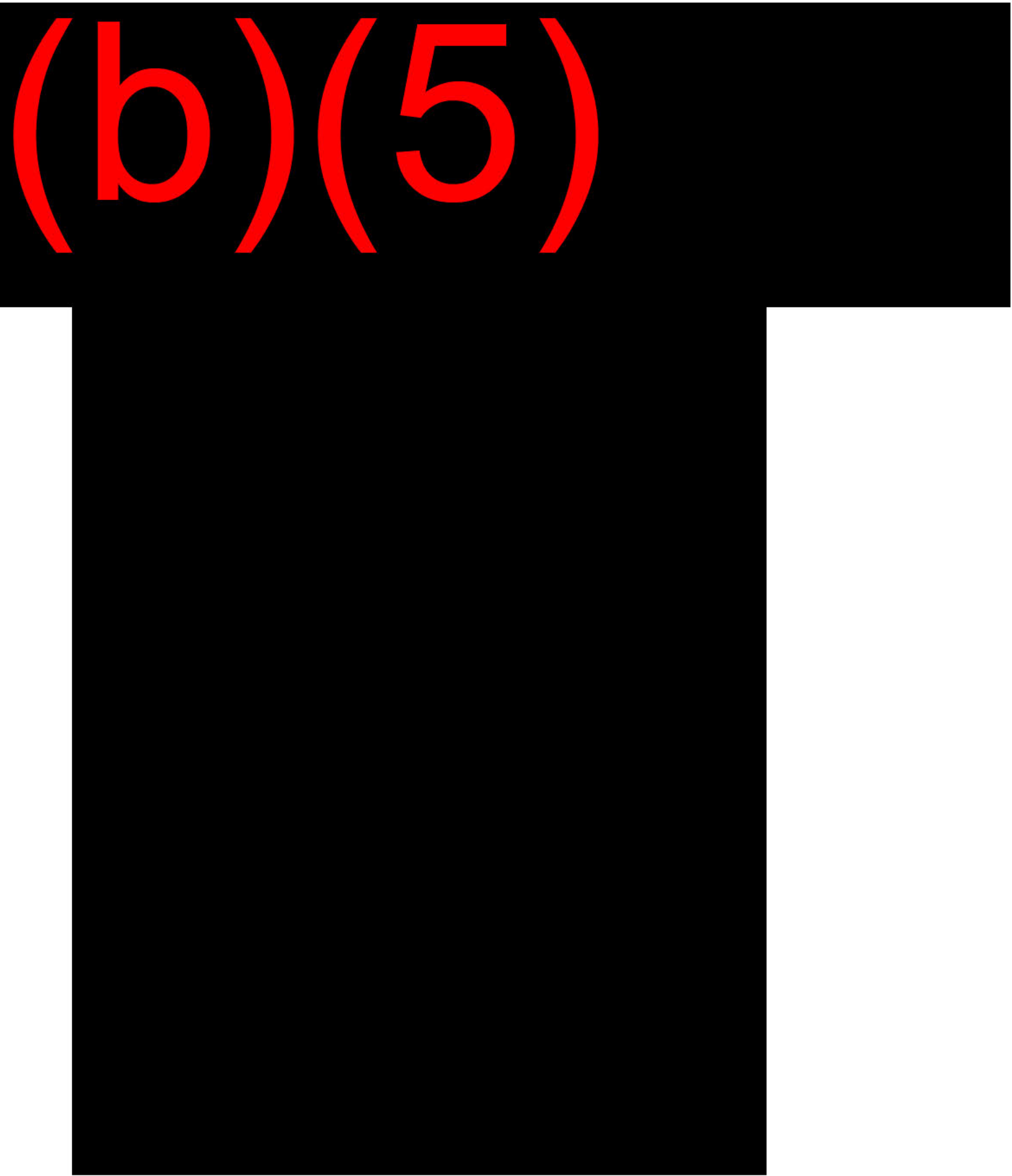
(b)(5)



39 1/13/20

(b)(5)





FOURTH FLOOR PLAN  
NOT TO SCALE

## Shell

40 + 1/13/20

Har r crack at sta r #2 (o d crack that wou d be assoc ated w th m nor sett ements).



41 + 1/13/20

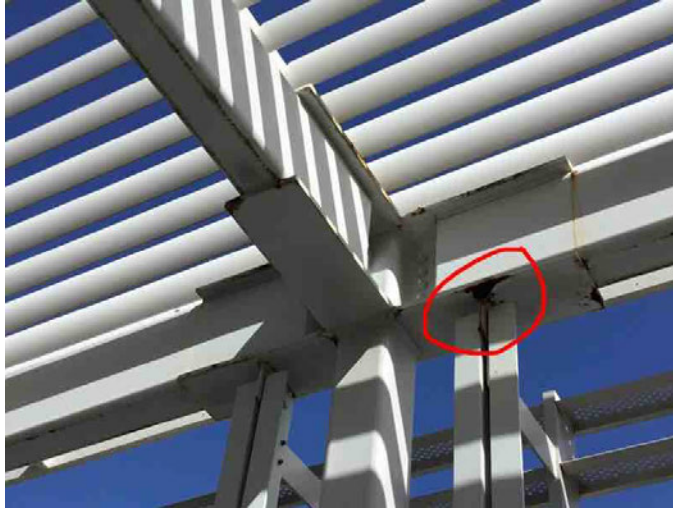
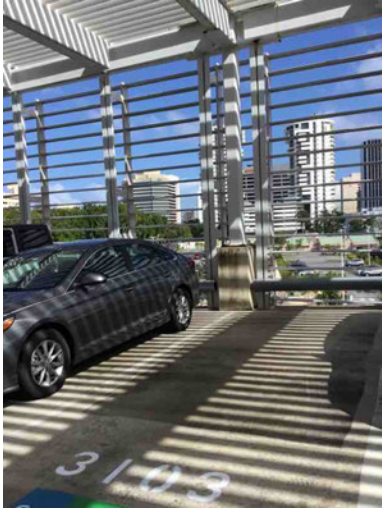
Moderate corros on. Th s tem requ res attent on.





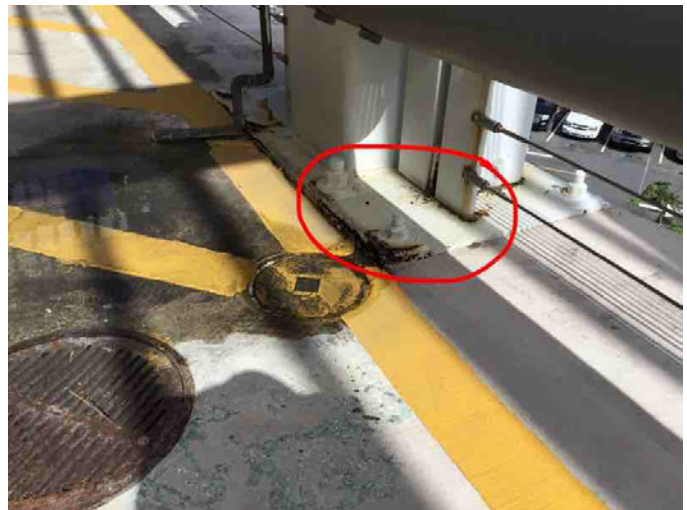
42 + 1/13/20

Corrosion of exposed steel plates.



43 + 1/13/20

Corrosion of exposed steel plates.



44 1/13/20

(b)(5)



45 1/13/20

(b)(5)



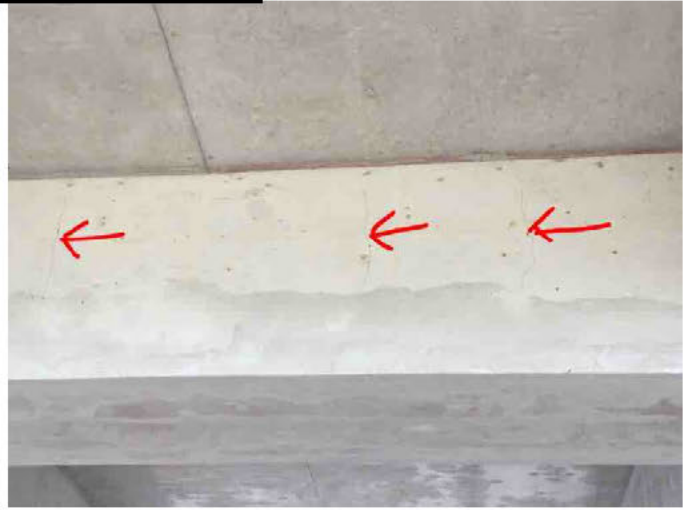
46 1/13/20

(b)(5)



47 1/13/20

(b)(5) [REDACTED]



48 1/13/20

(b)(5) [REDACTED]





49 + 1/13/20

Corros on of exposed stee p aates.

